



Attorney Docket 44508-5003

Application No. 10/089,175

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Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

1. (currently amended) A radiation resistant *Deinococcus radiodurans* bacterium comprising a nucleic acid encoding at least one *mer* operon ~~capable of detoxifying which detoxifies~~ at least one heavy metal when expressed, wherein said *Deinococcus radiodurans* can grow in the presence of continuous ionizing radiation exposure.

2. (currently amended) A radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein said *Deinococcus radiodurans* bacterium is non-pathogenic and can grow in the presence of continuous ionizing radiation of up to about 60 Gy/hour.

3 to 5. (cancelled)

6. (currently amended) A radiation resistant bacterium of claim [[4]] 1, wherein the at least one heavy metal is selected from the group consisting of chromium, lead, arsenic, zinc, cadmium, cobalt or mercury.

7 to 11. (cancelled)

12. (currently amended) A radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein the bacterium has been engineered to express at least one protein encoded by a nucleic acid other ~~that than~~ the *mer* operon.

13 to 24. (cancelled)

25. (currently amended) A bioremediation composition comprising the *Deinococcus radiodurans* bacterium of claim 1.

26. (original) A bioremediation composition of claim 25 further containing an agent selected from the group consisting of a film forming agent and a nutrient agent.

27. (previously amended) A bioremediation composition of claim 25 which is formulated for controlled release.

28. (previously amended) A bioremediation composition of claim 26 which is formulated for controlled release.

29 to 41. (cancelled)

42. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein said *Deinococcus radiodurans* is *Deinococcus radiodurans* (strain ATCC BAA-816).
43. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein the *mer* operon is constitutively expressed.
44. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein at least one *mer* operon is integrated into said *Deinococcus radiodurans* bacterium genome.
45. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein said *Deinococcus radiodurans* grows in the presence of up to 100 µM mercury.
46. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein the nucleic acid encoding the *mer* operon is expressed from an autonomously replicating plasmid.
47. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 46 wherein said autonomously replicating plasmid is pMD66 or a derivative thereof.
48. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 1, wherein the nucleic acid encoding the *mer* operon is integrated integrated in a plasmid.
49. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 48, wherein the plasmid is pMD727 or a derivative thereof.
50. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 48, wherein the plasmid is pMD728 or a derivative thereof.
51. (currently amended) The radiation resistant *Deinococcus radiodurans* bacterium of claim 48, wherein the plasmid is pMD731 or a derivative thereof.
52. (currently amended) A radiation resistant *Deinococcus radiodurans* bacterium comprising a nucleic acid encoding at least one *mer* operon capable of detoxifying which detoxifies at least one heavy metal when expressed, wherein said *Deinococcus radiodurans* can grow in the presence of continuous ionizing radiation exposure.
53. (currently amended) A radiation resistant, non-pathogenic *Deinococcus radiodurans* bacterium comprising a nucleic acid encoding at least one *mer* operon capable of detoxifying which detoxifies at least one heavy metal when expressed, wherein said *Deinococcus radiodurans* can grow in the presence of

continuous ionizing radiation exposure.